Gateway

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The ARRL Packet-Radio Newsletter

NEW PACKET-RADIO BOOK

A new book on packet radio written by Jim Grubbs, K9EI, will soon be released. The book, entitled Get *** CONNECTED to Packet Radio is over 200 pages of information exclusively on packet-radio subjects and will be available in a paperback edition.

Get *** CONNECTED to Packet Radio is divided into three sections:

1) An introduction to the history of the mode, selecting a TNC, making your first contact, what to do when it doesn't work, HF vs VHF operation, etc.

2) Advanced subjects including a layman's look at protocols, networking, the Xerox 820, BBS operations (the WØRLI system is featured), packet accessories, the software approach to packet and a chapter on more esoteric uses such as PACSAT, SAREX2, meteor scatter.

3) The final section is an extensive appendix including packet suppliers, bibliography, organizations and publications, GLB/TAPR cross reference, WØRLI commands etc.

Jim Grubbs, K9EI, is also author of The Commodore Ham's Companion and the Command Post. Jim will also be the moderator for the "Computers in the Hamshack" forum at this year's Dayton HAMVENTION, and has been recently named an assistant SYSOP on Compuserve's HamNet.

The release date on the book is "April 1986," and will be priced at $12.95 plus $2.50 for first class shipping and handling. It's available from:

QSKY Publishing
PO Box 3042
Springfield, Illinois 62708

Prepublication orders are being taken now for fast delivery when the book arrives. Ads will appear in QST, CQ, Ham Radio, World Radio and others beginning with the April issues.

From K9EI

FILE TRANSFER PROTOCOL

Stephen Ward, W1GOH, has recently written a program to transfer binary files to any WØRLI or WA7MBL system. The program, named BSQ.COM (Binary SQueeze) first compresses the binary file, and then converts it to 7-bit ASCII characters. BSQ.COM has been tested on MS-DOS and VAX/UNIX systems. It should work on CP/M systems as well. A "bootstrap" program, written in BASIC, calls BSQ.BSQ and converts it to BSQ.COM. If you would like to receive a copy of the program send a blank disk and return postage to:

Stephen Ward, W1GOH
8 Perabo Terrace
West Roxbury, MA 02132

or

Dick Eastman, K1OJH
45 Chelmsford Rd,
North Billerica, MA 01862

From K1OJH

ROBOT PACKET-RADIO OPERATION

Many of the packet-radio operators in the Dallas-Fort Worth, TX area have been carrying on almost normal conversations with a completely inhuman packet-radio station. Pacbot (Packet Robot) fills in for Dave Morris, NS5D, in Garland, TX when Dave is eating, sleeping or otherwise not watching his CRT.

Pacbot is similar to the popular Eliza artificial intelligence program, but understands and asks for ham-type information from the other station. Pacbot will such questions as QTH, rig, name, address, occupation and other topics that might normally be discussed in a typical ham QSO. Pacbot can even send out QSLs.

Each day, Dave gives Pacbot information on current events such as the recent shuttle tragedy, the unusually warm weather Dallas had in the last days of February, world politics, AMSAT satellite orbital information, etc. Pacbot keeps a log of all conversations, a directory of everyone he talks to, their addresses, rigs and occupations. Pacbot even knows where Dave is and when he will be monitoring packet radio.

Pacbot is written in PASCAL and resides on a Convergent Technologies computer with 1 megabyte of RAM and a 40 megabyte hard disk. A joke module is also in the works and may be available soon.
If you are in the Dallas-Fort Worth area, give a call to NS5D and Pacbot will respond to your connect request.

From Pacbot and NS5D

BEACON INTERFERENCE

In recent issues of Gateway we have commented on interference and the potential for interference from packet-radio stations to DX beacons on 14.100 MHz. The Gateway desk recently received a letter from the Clackmas Amateur Radio Club of Oregon City, Oregon, regarding such interference. We reprint the letter here to demonstrate the seriousness of this problem.

"A number of us have been concerned about a significant problem that we feel that the ARRL might well address. One of the goals of the Amateur Service is to further the state of the radio art. One way to do this is to study further the whole subject of HF propagation, which most will admit is not yet fully understood. We have found that an extremely useful tool in doing so is the Northern California DX Foundation worldwide beacon system, which operates on 14.100 MHz, and we eagerly support the efforts to keep this system operating. The system works by transmitting signals of decreasing power at regular intervals from several sites throughout the world. Since these are usually faint signals, careful monitoring for study involves using high AF gain.

"Another important way in which the art is furthered is the new, exciting modality, packet radio. We too, are interested in this and lend it our support. It functions by sending bursts of compressed data at high-speed. Unfortunately, many packeteers have inadvertently overwhelmed the beacon system by choosing 14.100 MHz as a packet frequency. The result is incredible cacophony.

"Recently, the IARU adopted a resolution reserving one KHz at 14.100 MHz for beacons. The ARRL also recognizes the validity of the beacons in their 'Considerate Operator's Frequency Guide.' In the spirit of fairness for which hams are justly famous, we respectfully request the packet community to agree on and adopt a suitable frequency a few KHz away from 14.100 MHz as a calling or working frequency for 20 meter activity, and similarly through ARRL, we ask the entire ham community to respect the beacon frequency."

Clackmas Amateur Radio Club

(Ed. Note: The frequency referred to above as 14.100 MHz is called 14.103 by packet operators. With a transceiver operating with a suppressed-carrier frequency of 14,103 kHz using lower sideband, the 200-Hz-shift tones of the TAPR TNCs would be 1600 and 1800 Hz below 14,103 kHz. That puts the tones at 14,101.4 and 14,101.5 respectively. But that is without keying, which at 300 bauds adds energy within at least another 150 Hz above and below those numbers if keying pulses are sinusoidal, probably more like 450 Hz if not.)

ARRL FILES FOR RECONSIDERATION

On February 24, the ARRL and eighteen other interested parties or organizations filed Petitions for Reconsideration with the FCC in the matter of 85-105. Gateway has chosen to highlight excerpts from three of these petitions. Two are from well-known organizations, The ARRL and TAPR, while the third is from a private individual Don Simon, NI6A.

The following is the summary from the ARRL's 20 page petition.

"The American Radio Relay League, Incorporated seeks Commission reconsideration of that portion of the Report and Order, FCC 86-18, which precludes operation of amateur radio stations under automatic control while transmitting third-party traffic. This provision is an exception to the general grant of authority in the Report and Order permitting automatic control of amateur digital communications above 50 MHz.

"The third-party traffic exception requires manual control of such stations whenever transmitting third-party traffic, thus in effect nullifying any possibility of automatic control of amateur packet repeaters (digipeaters) or computer-based message system (CBMSs). This is because there is no sure way of discerning whether the messages are the thoughts of the transmitting station or of some third party in the case of the digipeater. CBMS operation, by definition an automatic message storage and forwarding system, would have to be under manual control at all times, as it contains messages originated by third parties.

"The International Radio Regulations (Geneva 1979) do not prohibit automatic control in these instances.

"Present amateur digital technology makes it impractical as well as unnecessary, to require a control operator at each relay point of the communications. Rather, the potential for abuse, as well as the only real point of application of the control requirement, is at the point of origin of the communication.

"The useless application of this control operator requirement adds no protection against misuse of amateur frequencies by unsupervised, unlicensed individuals, but is rather an example of technology having outpaced regulation. The latter should not frustrate or impede development of public service applications of amateur packet technology."

The following excerpts were taken from the TAPR filing:

"Tucson Amateur Packet Radio, a club with international membership consisting of 1400 amateur packet radio enthusiasts which has coordinated the volunteer development of many of the major building blocks of the existing amateur packet network, and whose members have contributed since 1981 in the development of packet radio hardware, software, and operating procedures, hereby submits this petition for reconsideration of the report and order on PR docket No. 85-105. Our comments are limited to activities and operation above 50 MHz, as 85-105 only addresses these frequencies.

"A digital BBS system under automatic control could not transmit messages stored on it that are not originated by or destined for the control operator of that BBS. This makes illegal the major purpose of the bulletin board system.

"During the early development and on the air

testing of packet radio message systems, amateurs have viewed the message relay device as a repeater. A repeater, as defined by 97.3(1), is a device that automatically retransmits the radio signals of other amateur radio stations. Part 97 does not specify a minimum length for the time delay between receipt of the radio signal and its retransmission.

"Repeaters, as commonly used, can pass traffic between two amateurs, neither of whom are control operators of the repeater, with out having that traffic defined as third-party. Repeaters have regulatory limitations of their own, however, and the development of more complex message systems and other packet switching devices will soon pass beyond the limits of the current definition of 'repeater'.

"Existing amateur BBS systems are already handling large numbers of messages. Recent statistics reported by east coast stations show counts of more than 1000 messages per month at each of several sites. These systems are developing more sophisticated methods of automatically forwarding messages from site to site.

"To review, the language specified by 85-105, makes the BBS function, desired by both the amateur population and the FCC, illegal unless the BBS is classed as a repeater. Imminent developments in packet radio will make this classification invalid for some devices under the current definitions. Therefore, 85-105, while attempting to permit continued experimentation, actually inhibits it.

"On the other hand, TAPR and its members share the FCC's concern over potential abuse of the network by commercial interests. The problem then becomes one of making sure the amateur regulations are followed, while at the same time making it possible to build the network.

"We believe that it is possible to meet both of these goals. The key is in treating the packet radio network, consisting of an unspecified number of relay stations, as a "pipe". The pipe has an input and an output. At the entrance and exit to the pipe are non-automated control operators, who are ensuring compliance with the rules. Once a message has been placed in the pipe by a control operator, it need not be rechecked by an operator at each relay point that makes up the pipe. The message is again checked by a control operator at the end of the pipe if it is destined for a third-party. The amateur who was the control operator at the origination point of the message is responsible for ensuring compliance with the rules.

"At no time do we recommend that the third parties themselves be given direct access to the network."

The following excerpts were taken from the filing of Don Simon, NI6A:

"In the matter of FCC Ruling RM-4879 regarding Docket No. 85-105, I petition the FCC to reconsider at this time and cancel implementation pending a greater in-depth study of amateur radio packet switching networking in the best interests of the amateur radio service (as stated in FCC rules 97.1) and for the American public as a whole.

"It should be brought to your attention that RM-4879 requires a control operator to be present at the control point when third party traffic is being passed. Notice that the rule does not distinguish between third party traffic and traffic on behalf of a third party. Strictly interpreted it would require a control operator at each packet switching node (which is high speed), and at every packet store and forward mailbox regardless of frequency band utilized. What purpose can this serve? If the Commission were worried about traffic originated by non-licensed persons without a control operator being present, then I strongly recommend changing the wording of PR Docket 85-105 or issue new one stating "a control operator must be present at any origination point of traffic on behalf of a third party at the entry point into the amateur radio service and said traffic should be manually reviewed by the said control operator before being released forthwith. This way, the responsibility is squarely put on the shoulders of the originating station and the purpose of the rules are thus met. Otherwise, we are faced with a rule that is both difficult to enforce and which will severely hamper our ability to develop the packet switching technology, especially in preparation for disaster communication, as all disaster communications are on behalf of third parties.

"I would like to take this opportunity to remind the Commission that the ARRL National Traffic System handles third party traffic on a daily basis nationwide in order that we may improve our technique and provide training and preparedness for such disasters where existing commercial systems are often unavailable or severely overtaxed. May I remind the Commissioners that the key to any disaster response is adequate training and preparedness; and these packet switching systems are best allowed to function in this harmless mode in order, on a daily basis, to test this system and to provide a trained reserve of qualified technicians and operators.

"I would like to bring to the attention of the Commissioners that amateur packet development has the keen approval and backing of such organizations such as the American Red Cross, California State Office of Emergency Services, California Department of Forestry, and many other public safety and disaster agencies; in the hope that such a system will greatly alleviate suffering during disaster situations should the commission allow for such a system to develop. If we cannot design a system that can function for third party traffic, then it most likely will not reach its potential when emergency communications are needed the most. This seems to directly contradict FCC Rule 97.1(A-D) which is the very basis and purpose of the ARS."

Via DRNET, HamNet and Ham/Link

PACKET USED IN DISASTER

The February flooding in Northern California left tens of thousands homeless and isolated. Public safety agencies throughout Sonoma, Napa, Solano, Santa Cruz, Sacramento, Yuba,and Sutter Counties counted on Amateur Radio often as the only link

into many areas. Besides the constant work of normal 2-meter and 440-MHz ARES emergency nets going 24 hours a day, contact on a 24-hour basis was maintained with KH6GBX and KH6GBX-1 at State Office Of Emergency Services Headquarters in Sacramento via packet radio. Packet radio was also set up at the flood headquarters for the American Red Cross in San Francisco (W6MLK), Central Valley District Headquarters in Sacramento (K6PWA and WA6NWE-1), Yuba City Red Cross (WA2AGE, W6CFQ, KX6Z, K6QIF), California Dept of Forestry (WB6PMS), as well as packet liaison with Solano, Sonoma, Napa, Santa Cruz, West Contra Costa, and Marin Red Cross Chapters.

Local packeteers also decide to use a BBS system so that the Red Cross at San Francisco could dump its inquiries into the system at a convenient time. This would also allow overworked ARES members to check into the mailbox at free times for disaster welfare inquiries. Packet radio was used for six days in all. Approximately 200 inquiries were sent and received until normal telephone service was restored.

Via Ham/Link

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